

REMARKS

Claims 1-21 were pending and rejected in the above-identified patent application. Claim 9 is being amended. Reconsideration in view of the amendments above and the remarks below is respectfully requested.

In paragraphs 3 and 4, the Examiner rejected claims 1-6, 8, 11-17, and 19-21 under 35 USC § 103 as being unpatentable over Wahl in view of Blumenau. Wahl discloses a data mirroring system, wherein a local computer system can mirror data with a remote computer system. Fig. 5 illustrates and the corresponding text describes a technique for mirroring a first logical group (Logical Group 0) on system 12 with a first remote logical group (Logical Group 0) on system 14, and mirroring a second logical group (Logical Group 1) on system 12 with a second remote logical group (Logical Group 1) on system 14. Blumenau discloses disassociation of storage volumes.

Generally, each of independent claims 1, 11, 14 and 21 includes the limitations of mirroring a first local volume with a second local volume and mirroring a first remote volume with a second remote volume. More particularly, claim 1 recites “making a third logical volume in the first storage subsystem, the third logical volume being a copied logical volume of the first logical volume, the first logical volume and the third logical volume being in sync state, [and] making a fourth logical volume in the second storage subsystem, the fourth logical volume being a copied logical volume of the second logical volume, the second logical volume and the fourth logical volume being in sync state.” Claim 11 recites “a third means for storing data, co-located with and a copy of content of the first means for storing data, and being in a sync state with the first means for storing data; [and] a fourth means for storing data, co-located with and a copy of content of the second means for storing data, and being in a sync state with the second means for storing data.” Claim 14 recites “establishing a first local mirror between the first logical unit and a third logical unit in the first storage system; [and] establishing a second local mirror between the second logical unit and a fourth logical unit in the second storage system.” And, claim 21 recites “code for establishing a first local mirror between the first logical unit and a third logical

unit in the first storage system; [and] code for establishing a second local mirror between the second logical unit and a fourth logical unit in the second storage system.”

Pointing to Fig. 5 and the corresponding text of Wahl, the Examiner suggests that Wahl describes a mirror between the logical group 0 and logical group 1 on system 12 via a master daemon 24 (incorrectly labeled in Fig. 5 as “30”) and a mirror between logical group 0 and logical group 1 on system 14 via a master daemon 30. Applicant, however, respectfully submits that master daemons 24 and 30 do not mirror logical group 0 and logical group 1. First, Fig. 5 does not show a connecting line between logical group 0 and logical group 1 on either system 12 or system 14. There is, however, a connecting line between logical group 0 on system 12 and logical group 0 on system 14, and a connecting line between logical group 1 on system 12 and logical group 1 on system 14, evidencing only remote mirror connections of logical group 0 between systems 12 and 14 and remote mirror connections of logical group 1 between systems 12 and 14. If Wahl had intended local mirror connections, Applicant respectfully submits that they would have been drawn in Fig. 5 as connecting lines. Second, the text corresponding to Fig. 5 does not describe or mention a mirror between logical group 0 and logical group 1. Third, in col. 11 lines 49-52, Wahl states, “In one exemplary implementation, the computer network remote data mirroring system 10 supports up to 512 logical groups 34, each with an unlimited number of local data storage units 26.” Applicant finds it hard to believe that Wahl intended to have 512 logical groups locally mirrored -- such redundancy would be unnecessary and impractical. Applicant finds it more reasonable to believe that Wahl intended to support 512 different logical groups to be individually mirrored remotely. Such system would be able to support many data groupings and/or users.

Since Wahl does not disclose a local mirror connection between logical group 0 and logical group 1, Wahl cannot teach “breaking the sync state between the first logical volume and the third logical volume and between the second logical volume and the fourth logical volume based on a command” of claim 1, “a means for breaking the sync state between the first means for storing data and the third means for storing data and between the second means for storing data and the fourth means for storing data” of claim 11, “splitting the first local mirror

and the second local mirror" of claim 14, or "code for splitting the first local mirror and the second local mirror" of claim 21.

Since neither Wahl nor Blumenau teaches local mirror connections or splitting local mirror connections, Applicant respectfully submits that claims 1, 11, 14 and 21 and claims 2-6, 8, 12, 13, 15-17, 19 and 20 which depend from these claims are patentable over Wahl in view of Blumenau for at least these reasons.

In paragraph 5, the Examiner rejected claims 9 and 10 under 35 USC § 103 as unpatentable over Wahl in view of Gotoh. Gotoh discloses an optical disk barcode formatting method.

Claim 9, as amended, recites "a primary volume id (PVOL ID) indicating a primary volume (PVOL), the PVOL having a local mirror connection with a primary mirror volume; and a secondary volume id (SVOL ID) indicating a secondary volume (SVOL), the SVOL being having a local mirror connection with the PVOL and with a secondary mirror volume; the atomic split command instructing the PVOL to remove the local mirror connection with the primary mirror volume and instructing the SVOL to remove the local mirror connection with the secondary mirror volume."

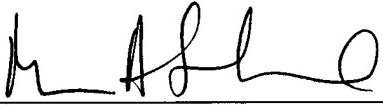
As stated above with reference to claim 1, Wahl does not disclose local mirror connections. Neither does Gotoh. Accordingly, Applicant respectfully submits that claim 9 and claim 10 dependent therefrom are patentable for at least these reasons.

In paragraph 6, the Examiner rejected claims 7 and 18 under 35 USC § 103 as unpatentable over Wahl in view of Blumenau and further in view of Kamvysselis. Kamvysselis discloses an asynchronous mirroring system. As stated above with reference to claim 1 (from which claim 7 depends) and claim 14 (from which claim 18 depends), Wahl does not disclose local mirror connections. Neither does Kamvysselis. Accordingly, Applicant respectfully

submits that claims 7 and 18 are patentable for at least the reasons discussed above with reference to claims 1 and 14.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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